

PCT

INTERNATIONAL PRELIMINARY EXAMINATION REPORT

(PCT Article 36 and Rule 70)

Applicant's or agent's file reference. PCA30650/KIT - ARK		FOR FURTHER ACTION See Notification of Transmittal of International Preliminary Examination Report (Form PCT/IPEA/416)	
International application No. PCT/KR2003/001511	International filing date (day/month/year) 29 JULY 2003 (29.07.2003)	Priority date (day/month/year) 02 AUGUST 2002 (02.08.2002)	
International Patent Classification (IPC) or national classification and IPC IPC7 C23C 16/40			
Applicant KOREA RESEARCH INSTITUTE OF CHEMICAL TECHNOLOGY et al			

1. This international preliminary examination report has been prepared by this International Preliminary Examining Authority and is transmitted to the applicant according to Article 36.


2. This REPORT consists of a total of 3 sheets, including this cover sheet.



☐ This report is also accompanied by ANNEXES, i.e., sheets of the description, claims and/or drawings which have been amended and are the basis for this report and/or sheets containing rectifications made before this Authority (see Rule 70.16 and Section 607 of the Administrative Instructions under the PCT).

These annexes consist of a total of _____ sheets.

3. This report contains indications relating to the following items:

- I ☒ Basis of the report
- II ☐ Priority
- III ☐ Non-establishment of opinion with regard to novelty, inventive step and industrial applicability
- IV ☐ Lack of unity of invention
- V ☒ Reasoned statement under Article 35(2) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement
- VI ☐ Certain documents cited
- VII ☐ Certain defects in the international application
- VIII ☐ Certain observations on the international application



Date of submission of the demand 17 FEBRUARY 2004 (17.02.2004)	Date of completion of this report 31 MAY 2004 (31.05.2004)
Name and mailing address of the IPEA/KR  Korean Intellectual Property Office 920 Dunsan-dong, Seo-gu, Daejeon 302-701, Republic of Korea Facsimile No. 82-42-472-7140	Authorized officer CHO, Ji Hun Telephone No. 82-42-481-5528 

INTERNATIONAL PRELIMINARY EXAMINATION REPORT

international application No.

PCT/KR2003/001511

I. Basis of the report

1. With regard to the elements of the international application:*

☒ the international application as originally filed☒ the description:

pages 1-8

pages NONE

pages NONE

, as originally filed
, filed with the demand
, filed with the letter of☒ the claims:

pages 9-10

pages NONE

pages NONE

pages NONE

, as originally filed
, as amended (together with any statement) under Article 19
, filed with the demand
, filed with the letter of☒ the drawings:

pages 1-2

pages

pages

, as originally filed
, filed with the demand

, filed with the letter of

☒ the sequence listing part of the description:

pages NONE

pages NONE

pages NONE

, as originally filed
, filed with the demand
, filed with the letter of

2. With regard to the language, all the elements marked above were available or furnished to this Authority in the language in which the international application was filed, unless otherwise indicated under this item.

These elements were available or furnished to this Authority in the following language _____ which is

☐ the language of a translation furnished for the purposes of international search (under Rule 23.1(b)).☐ the language of publication of the international application (under Rule 48.3(b)).☐ the language of the translation furnished for the purposes of international preliminary examination (under Rules 55.2 and/or 55.3).

3. With regard to any nucleotide and/or amino acid sequence disclosed in the international application, the international preliminary examination was carried out on the basis of the sequence listing:

☐ contained in the international application in written form.☐ filed together with the international application in computer readable form.☐ furnished subsequently to this Authority in written form.☐ furnished subsequently to this Authority in computer readable form.☐ The statement that the subsequently furnished written sequence listing does not go beyond the disclosure in the international application as filed has been furnished.☐ The statement that the information recorded in computer readable form is identical to the written sequence listing has been furnished.4. ☐ The amendments have resulted in the cancellation of:☐ the description, pages _____☐ the claims, Nos. _____☐ the drawings, sheet _____

5.

☐ This report has been established as if (some of) the amendments had not been made, since they have been considered to go beyond the disclosure as filed, as indicated in the Supplemental Box (Rule 70.2(c)).**

* Replacement sheets which have been furnished to the receiving Office in response to an invitation under Article 14 are referred to in this opinion as "originally filed." and are not annexed to this report since they do not contain amendments (Rules 70.16 and 70.17).

** Any replacement sheet containing such amendments must be referred to under item I and annexed to this report.

INTERNATIONAL PRELIMINARY EXAMINATION

International application No.

PCT/KR2003/001511

V. Reasoned statement under Article 35(2) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement

1. Statement

Novelty (N)	Claims	1-11	YES
	Claims	NONE	NO
Inventive step (IS)	Claims	1-11	YES
	Claims	NONE	NO
Industrial applicability (IA)	Claims	1-11	YES
	Claims	NONE	NO

2. Citations and explanations (Rule 70.7)

Reference is made to the following documents

- D1: US 5,922,405 (KOREA RES INST CHEM TECH) 13 July 1999 (1999-7-3)
- D2: GB 2179679 (RCA CORP) 11 March 1987 (1987-3-11)
- D3: JP 5-129227 (SEIKO EPSON CORP) 25 May 1993 (1993-5-25)
- D4: EP 0738002 (TEXAS INSTRUMENTS INC) 16 October 1996 (1996-10-16)

The present application relates to an aluminum film formed on a substrate by a process comprising A) bringing the vapor of a dialkylaluminum alkoxide into contact with the substrate mounted in a deposition reactor so that an aluminum-containing adsorption layer is formed on the substrate; B) removing the unreacted aluminum compound and by-products from the reactor; C) introducing an oxygen source into the reactor so that the oxygen reacts with the aluminium-containing adsorption layer to form aluminium oxide layer; and D) removing the unreacted oxygen source and by-products from the reactor.

The present application can be applied to the aluminum film forming process, thus industrially applicable.

in the document from D2 to D4, the process for depositing oxide film on a substrate is disclosed, but the use of vapor of a dialkylaluminum alkoxide is not disclosed. Thus, D2 to D4 cannot be used against the novelty or the inventive step of the present application.

D1 is about an aluminum oxide film deposited on a substrate by a process which comprises vaporizing a dialkylaluminum alkoxide compound at a temperature ranging from 0 to 25 DEG C. and contacting the resulting vapor with said substrate heated to a temperature ranging from 300 to 600 DEG C. D1 is similar to the present invention in that it is about the aluminum oxide film with the dialkylaluminum alkoxide compound. But, D1 does not include the process of "removing the unreacted aluminum compound and by-products from the reactor" and "removing the unreacted oxygen source and by-products from the reactor". Also, the present invention is different from D1 in that the present invention is processed in the uniform temperature, whereas, in D1, compound or substrate have to be heated to a specific temperature.

Thus, they are not considered to be of a particular relevance in respect to the present application.

The presently claimed subject-matter is thus believed to be noble and to involve an inventive step when compared with the prior art as cited in the international Search Report (article 33(2) and (3) PCT).